



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

## DEPARTMENT OF MECHANICAL ENGINEERING

### 2030272 BASIC ELECTRICAL AND ELECTRONIC ENGINEERING LAB

B.Tech.II Year-I Sem

L/T/P/C

0/0/2/1

### VISION

The Mechanical Engineering Department strives for immense success in the field of education, research and development by nurturing the budding minds of young engineers inventing sets of new designs and new products which may be envisaged as the modalities to bring about a green future for humanity”

### MISSION

Equipping the students with manifold technical knowledge to make them efficient and independent thinkers and designers in national and international arena. Encouraging students and faculties to be creative and to develop analytical abilities and efficiency in applying theories into practice, to develop and to disseminate new knowledge. Pursuing collaborative work in research and development organizations, industrial enterprises, research and academic institutions of national and international standards, to introduce new knowledge and methods in engineering teaching and research in order to orient young minds towards industrial development.

### LIST OF EXPERIMENTS

1. Verification of KVL and KCL.  
(i) Measurement of Voltage, Current and Real Power in primary and secondary circuits of single phase transformer.  
(ii) Verification of Relationship between Voltages and Currents in a Three Phase Transformer.
2. Measurement of Active and Reactive Power in a balanced Three-phase circuit.
3. Performance Characteristics of a Separately Excited DC Shunt Motor.
4. Performance Characteristics of a Three-phase Induction Motor.
5. No-Load Characteristics of a Three-phase Alternator.
6. Study and operation of Multi meters, Function Generator, CRO, Regulated Power Supplies.
7. PN Junction diode characteristics.
8. Zener diode characteristics and Zener as voltage Regulator.
9. Input and Output characteristics of Transistor in CB/CE configuration.
10. Full Wave Rectifier with & without filters.
11. Input and Output characteristics of FET in CS configuration.

### COURSE OUTCOMES

CO	Course outcome
ME 272.1	To analyze and solve electrical circuits using network laws and theorems.
ME 272.2	To understand and analyze basic Electric and Magnetic circuits.
ME 272.3	To study the working principles of Electrical Machines.
ME 272.4	To introduce components of Low Voltage Electrical Installations.
ME 272.5	To identify and characterize diodes.
ME 272.6	To identify and characterize various types of transistors.



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#### PROGRAM EDUCATIONAL OBJECTIVES

PEO1	Graduates shall emerge as successful Mechanical engineer's as their career progress
PEO2	Graduates apply fundamentals of engineering, in practical applications and engage in active research.
PEO3	<b>Mechanical Graduates</b> shall have the ability to design products with interdisciplinary skills.
PEO4	Graduates will serve the society with their professional skills

#### PROGRAM SPECIFIC OUTCOMES

**PSO1-** Students acquire necessary technical skills in mechanical engineering that make them employable graduate.

**PSO2-** An ability to impart technological inputs towards development of society by becoming an entrepreneur

#### LIST OF EQUIPMENTS

1. DC SHUNT MOTOR COUPLED WITH DC SHUNT GENERATOR.
2. DC COMPOUND MOTOR WITH MECHANICAL LOADING ARRANGEMENT ACCESSORIES.
3. DC SERIES IDENTICAL MACHINES COUPLED WITH BASE PLATE & COUPLING ACCESSORIES.
4. DC SHUNT MOTOR WITH SUITABLE ARRANGEMENT ACCESSORIES.
5. SEPARATELY EXCITED DC SHUNT MOTOR COUPLED TO SEPARATELY EXCITED GENERATOR ACCESSORIES.
6. D.C COMPOUND GENERATOR WITH SUITABLE ARRANGEMENT ACCESSORIES.



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## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **2030272 BASIC ELECTRICAL AND ELECTRONIC ENGINEERING LAB**

#### **Do's**

- Enter laboratory with appropriate laboratory uniform and shoes.
- Keep all your belongings in the book rack or at the place suggested by lab instructor.
- Bring the laboratory manual, observation and record without fail.
- Avoid contact with energized electrical circuits.
- Disconnect the power source before servicing or repairing electrical equipment.
- When it is necessary to handle equipment that is plugged in, be sure hands are dry and, when possible, wear nonconductive gloves and shoes with insulated soles.
- Make sure that all equipment is clean and returned to its original place after performing experiments.
- If water or a chemical is spilled onto equipment, shut off power at the main switch or circuit breaker and unplug the equipment.
- Wear disposable gloves, as provided in the laboratory, when handling hazardous materials.

#### **Don'ts**

- Don't place glassware near edge of laboratory bench.
- Don't let water drip onto power strips.
- Never point the open end of a test tube containing a substance at yourself or others.
- Don't use mobile phones during laboratory hours.
- Don't fool around in the laboratory.
- Don't come with long hair, dangling jewelry and loose or baggy clothing which are a hazard in the laboratory.
- .Do not make circuit changes or perform any wiring when power is on.